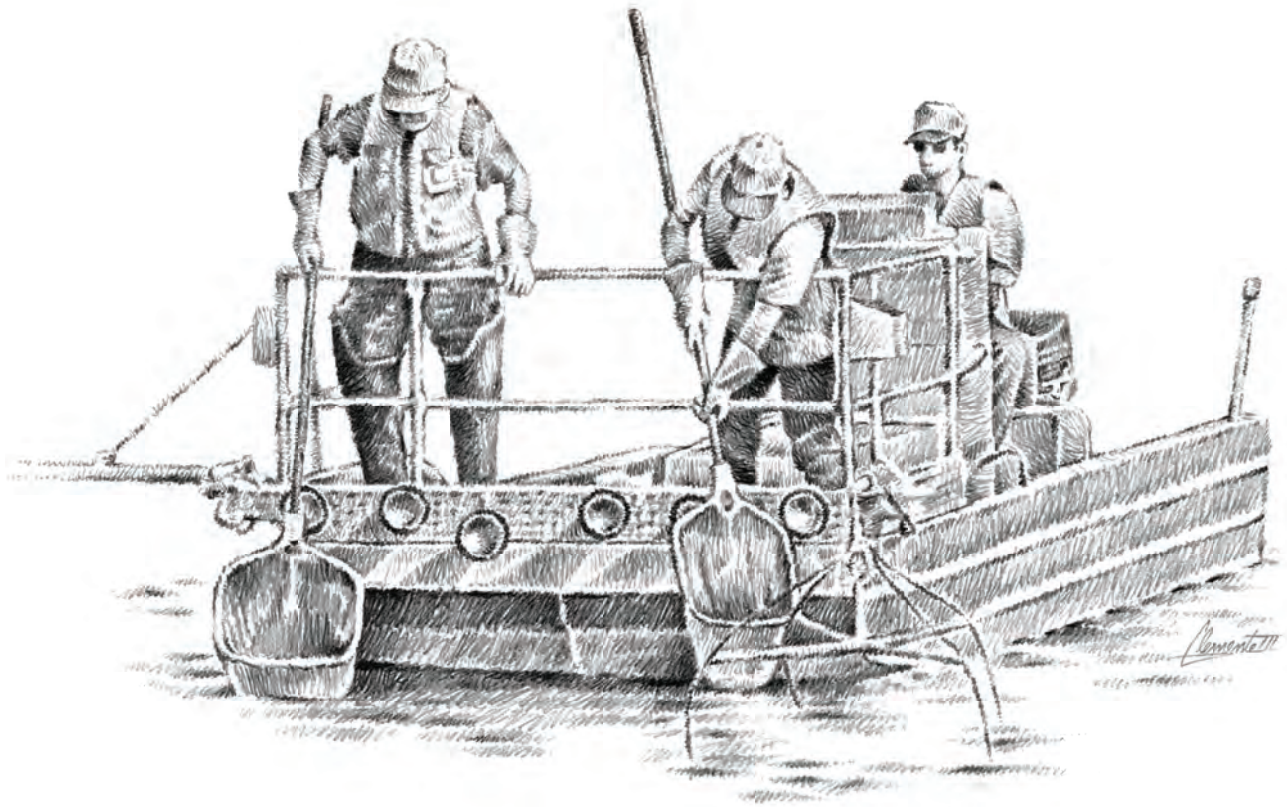


# INLAND FISHERIES ANNUAL REPORT 2014



**IMPROVING THE QUALITY OF FISHING**



Carter Smith  
Executive Director

Gary Saul  
Director, Inland Fisheries





# **INLAND FISHERIES ANNUAL REPORT 2014**



# **TEXAS PARKS AND WILDLIFE DEPARTMENT**

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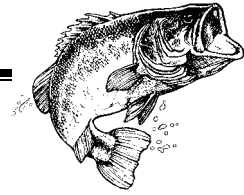


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# INLAND FISHERIES OVERVIEW

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## Mission

To provide the best possible fishing opportunities while protecting and enhancing freshwater aquatic resources.

## Scope

The Inland Fisheries Division is responsible for managing the fishery resources in approximately 1,100 public impoundments and about 191,000 miles of rivers and streams together totaling 1.7 million acres. These resources are used by 1.85 million anglers, whose fishing activities result in at least \$960 million in trip and equipment expenditures.

## Agency Goals

Texas Parks and Wildlife Department's Land and Water Resources Conservation and Recreation Plan (2015) establishes four primary goals to direct the agency's division operating plans and decisions regarding the state's conservation and recreation needs.

- Practice, Encourage and Enable Science-Based Stewardship of Natural and Cultural Resources
- Increase Access to and Participation in the Outdoors
- Educate, Inform and Engage Citizens in the Support of Conservation and Recreation
- Employ Efficient, Sustainable and Sound Business Practices

## Division Goals

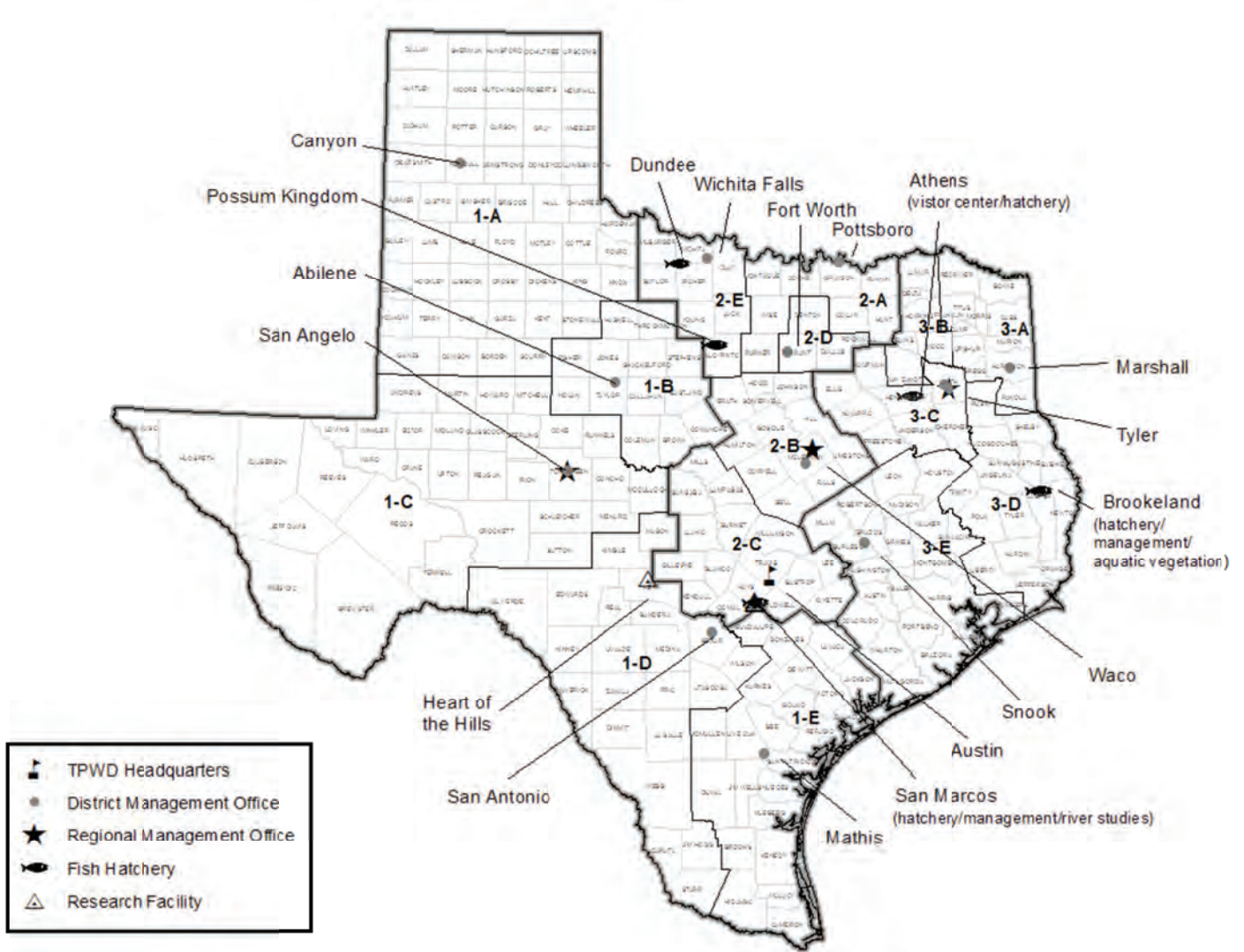
The Division goals were developed to address the major issues facing the freshwater fisheries resources of Texas.

- Maintain or restore appropriate conditions to support healthy aquatic ecosystems
- Maintain quality fish communities for recreation and ecological health and value
- Maintain or increase constituent satisfaction, participation or stewardship
- Employ efficient and sustainable business practices in fisheries management

## Staff

Inland Fisheries has 204.75 positions assigned to management, hatchery, research, outreach, habitat, analytical services, and administrative branches. For details, see Appendix – Organization Charts.

# Facilities



# Contact Information

Inland Fisheries Division • Texas Parks and Wildlife Department  
 4200 Smith School Road • Austin, Texas 78744  
 (800) 792-1112 or (512) 389-4444 • [www.tpwd.texas.gov](http://www.tpwd.texas.gov)



## Funding and Allocation

In FY14 \$17,614,636 was budgeted for Inland Fisheries (not including fringe benefits or capital construction). Federal Aid grants are expected to reimburse the Department \$9,556,368 on eligible Inland Fisheries activities. The allocation of Federal Aid monies was \$2,702,750 for Fish Hatchery facilities and \$6,853,618 for Management and Research, Habitat, Outreach, and Administrative and Laboratory services.

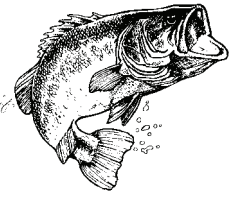
### FY14 Budget by Program

Administration	\$2,167,678
Management and Research	\$5,839,014
Hatcheries and Laboratory	\$4,887,822
Habitat	\$3,571,588
Outreach/Texas Freshwater Fisheries Center	\$1,148,534
<b>Total FY14 w/o fringe</b>	<b>\$17,614,636</b>



# WHAT WE DO

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## Administration

The administrative function of the Inland Fisheries Division occurs at Texas Parks and Wildlife Department headquarters in Austin. The administrative staff provides critical leadership, management of budgets and grants, and managerial support to a large number of field offices that work to carry out the mission of the division, largely outside the walls of headquarters. The Inland Fisheries Division seeks to maximize collaborative efforts between its work groups to accomplish projects and to achieve the larger goals of the division. These efforts, at least in part, are due to the close coordination of a small group of leaders who direct activities of staff in the areas of fisheries management and research, hatcheries, habitat conservation, information and regulations, analytical services, and Texas Freshwater Fisheries Center (outreach).



## Habitat Conservation

Healthy fish populations and quality freshwater fishing opportunities depend upon healthy habitats in Texas streams, rivers and reservoir systems. The Inland Fisheries Division's goals and objectives for conservation of freshwater fish habitats are accomplished through science and conservation partnerships with other TPWD divisions, non-governmental organizations, private landowners, local communities, river authorities, local, state and federal agencies, and other conservation organizations.

Specific conservation actions are led and coordinated by the Division's Habitat Conservation branch, which consists of 32 employees with multidisciplinary training and expertise in aquatic biology and ecology, hydrology, fluvial geomorphology, riparian and floodplain ecology, instream flow science, toxicology, restoration science and conservation policy. Responsibilities include a broad range of natural resource issues including watershed protection and restoration; instream flow science; fish conservation; management of aquatic invasive species; environmental response, damage assessment, and restoration; and other topics affecting the health of Texas fisheries, their habitats, and other aquatic resources.

## Fisheries Management and Research

The Division's fisheries management program assesses fish communities, fish habitat, angler access, and angler use of public water resources. Sampling activities performed by this group are guided through scientifically accepted procedures (e.g. Fishery Assessment Procedures Manual) that ensure a high degree of data quality, integrity, and validity for statistically analyzing trends and making sound fisheries management decisions. This team develops fisheries management plans for individual water bodies, develops the statewide fish stocking plan, recommends changes to harvest regulations, implements habitat improvement projects, assists with treatment of invasive aquatic species, conducts public outreach, manages our urban fishing programs, and



performs research to evaluate and improve fisheries management strategies. Staff provide assistance and information to the general public, fishing-related industries, water controlling authorities, local governments, angling groups, civic groups, property owners, media, universities, and other natural resource agencies. Work teams are located at three regional offices and 15 district offices statewide.

The Inland Fisheries research program at the Heart of the Hills Fisheries Science Center in Mountain Home provides leadership, support, and coordination for all research activities supported by the Division. The program also provides intensive research investigations, literature reviews, statistical analyses, staff training, and science-based position papers that inform decision makers on critical aquatic resource-related issues or problems.



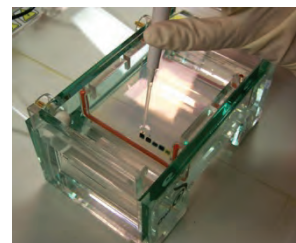
## Hatcheries

Hatcheries serve as an important component of Inland Fisheries resource management. Fish stocking is utilized as one of several essential tools to protect, manage and enhance statewide fisheries resources as well as achieve specific fisheries resource objectives. The Inland Fisheries Division operates five fish hatcheries located in San Marcos (AE Wood), Athens (Texas Freshwater Fisheries Center), Graford (Possum Kingdom), Electra (Dundee) and Brookeland (John D. Parker East Texas Fish Hatchery). Stocked fish must meet

specific stocking requirements including number, size, genetic integrity, disease-free status and time of stocking. Hatchery stocked fish are used to start new fish populations, supplement existing fish populations, restore depleted or threatened populations, provide fish in small urban lakes, enhance population genetics and performance, take advantage of improved habitat, and increase angler opportunities and success. Additionally, TPWD hatcheries play a significant role in public education and outreach. Hatchery personnel are involved in public outreach programs and agency sponsored fishing events as well as providing educational hatchery tours to the general public and students of all ages.

## Analytical Services

The Analytical Services team serves a unique function within Inland Fisheries by providing state-of-the-science analyses in water quality, fish pathology, and genetics. Analytical Services conducts a variety of chemical analyses in support of divisional, interdivisional, and interagency programs. Analyses are routinely performed for the Kills and Spills Team, Law Enforcement Division's Environmental Crime Unit, and in support of research conducted by Inland Fisheries staff. The collective expertise of the staff allows customized analyses aimed at meeting the changing needs of the department and the state.



The Fish Health and Genetics Laboratory at AE Wood provides specialized expertise in fish health and genetics, and in support of hatchery discharge permits. In-house expertise facilitates timely and efficient response to emerging and ongoing concerns. Fish health expertise imparts an ability to focus on specific pathogens of interest. Genetics expertise and equipment are used to facilitate management and advance scientific knowledge of important sport fish including Largemouth Bass, Striped Bass, and catfish, along with species of concern such as Guadalupe Bass and the Pecos River Pupfish. In the case of fish kill investigations, the lab may work to analyze both biological and chemical agents of concern.



## Information and Regulations

The Information and Regulations group works closely with the Fisheries Management and Research branch during the regulatory process to develop fishing regulation change proposals, obtain public input on the changes, and communicate the proposals to the Texas Parks and Wildlife Commission. Staff members also provide administrative support to Division staff based in Austin and furnish expertise for division-wide and agency-wide assessments of relevant data. This group coordinates the issue of permits including triploid grass carp and handles the freshwater fishing web pages, river access information including Texas Paddling Trails, Angler Recognition, and general information for the public. Staff are located at Texas Parks and Wildlife Department headquarters in Austin.

## Texas Freshwater Fisheries Center

The Texas Freshwater Fisheries Center (TFFC), located in Athens, is a multipurpose facility that provides educational experiences to the public while also producing millions of fish annually to meet the stocking needs of fisheries managers. TFFC also serves as headquarters for the Toyota ShareLunker program. More than 50,000 people visit TFFC annually; over 20,000 of those are youth aged 12 and under. The visitor center opens six days a week to individuals and families. In addition, TFFC provides high quality, intensive, hands-on outdoor and science educational experiences for K-12 students, preservice teachers and educators. Special events are held throughout the year to encourage and enhance constituent participation. These activities result in connections to aquatic resources in Texas, information about Inland Fisheries management and hatchery work, and great fishing experiences.





# KEY ACCOMPLISHMENTS

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## Monitoring, Management Plans, and Permits

**River Surveys** — Staff conducted surveys on 18 rivers in nine major basins, focusing on conservation of aquatic species and/or informed water management decisions for fish and wildlife. This activity included surveys of fish, freshwater mussels, riparian condition, public access, benthic invertebrates, habitat, water quality, fish kill/pollution investigation, and exotic/invasive fish and plant species.



**Reservoir Surveys** — Staff conducted 366 surveys of fish populations, habitat, water quality, and angler use on 160 reservoirs covering 1,360,714 surface acres of water. These resulted in the production of 42 comprehensive reservoir fisheries management plans designed to improve freshwater fishing opportunities for anglers.

**Objective-based Sampling** — In the past, routine sampling on reservoirs was guided by a standard set of procedures with minimum sampling efforts determined by reservoir size, gear type, and target species. Given that Texas has a large number of reservoirs, each possessing unique fish communities, fishing opportunities, and fisheries management challenges, it made good sense to launch a new sampling approach that could be more flexible and be customized for individual waters. Objective-based sampling will help biologists narrow their scope of work by prioritizing available fisheries and directing more effort to areas of greatest need. Targeted sampling improves data quality and reliability while making the best use of staff time and funding. We plan to phase in this new sampling approach over the next four years.

**Fish Health Investigations** — A.E. Wood and collaborating laboratories investigated 42 fish health cases, analyzing approximately 2,317 fish. In addition, the laboratories completed four chemistry and 17 genetics projects.

**Guidance for Activities Affecting Watersheds** — Inland Fisheries offers technical guidance to other government agencies and private corporations on strategies to avoid, minimize, and mitigate impacts to sport fisheries, their habitats, and other aquatic resources. In 2014, we provided guidance on more than 60 major urban development projects, two proposed dam and reservoir projects, two ongoing hydropower projects, and water management plans for two major river basins. We also consulted on restoration designs and monitoring protocols for stream and wetland mitigation banks in North, Central, and East Texas.

**Permits** — Invasive species biologists issued 93 permits for possession of various prohibited exotic fish, shellfish, or aquatic plants. An additional 31 exotic species permits were issued for research and zoological display purposes. Forty-five permits were issued for nongame fishes, and 71 permits for commercial production of water spinach (*Ipomoea aquatica*.)

## Applied Management and Conservation Actions

**Restoring Guadalupe Bass** — The Blanco River is a clear, spring-fed river in Central Texas within the native range of the official state fish of Texas. Guadalupe Bass were extirpated from the Blanco following the introduction of non-native Smallmouth Bass and concomitant hybridization. In 2011, exceptional drought conditions reduced the river to a series of enduring pools, affording an opportunity for removal of Smallmouth Bass and their hybrids. In 2012–2013, 322,000 hatchery-reared Guadalupe Bass were reintroduced into the Blanco. Surveys in summer 2014 collected wild, naturally-produced Guadalupe Bass (offspring of fish stocked in 2012), confirming the successful repatriation of our state fish to this iconic Texas Hill Country river.



**Partnering to Protect Reservoir Habitats** — Inland Fisheries partnered with the Brazos River Authority to identify water levels that would maintain critical fish habitat and recreational access in all 11 major reservoirs in the Brazos River basin. We analyzed the effects of changes in reservoir water levels on the quantity and quality of fish habitat, and on recreational access. Recommendations were developed for each reservoir and were incorporated in the river authority’s newly proposed Water Management Plan, subject to approval by Texas Commission on Environmental Quality. Reservoirs in the Brazos River basin support nearly one million recreational angling hours. This partnership demonstrated the value of having a “seat at the table” in water management planning and serves as a model for future work with other water authorities across the state. In August 2014, this project received national recognition via a Sportfish Restoration Outstanding Project Award in the category of Sport Fishery Development and Management.



**Habitat Improvement Projects** — Staff conducted reservoir fish habitat improvement activities on 29 public reservoirs, affecting a total of 2,651 surface acres. We planted native aquatic vegetation, removed invasive plants, and installed natural or man-made fish attractor structures and habitats.

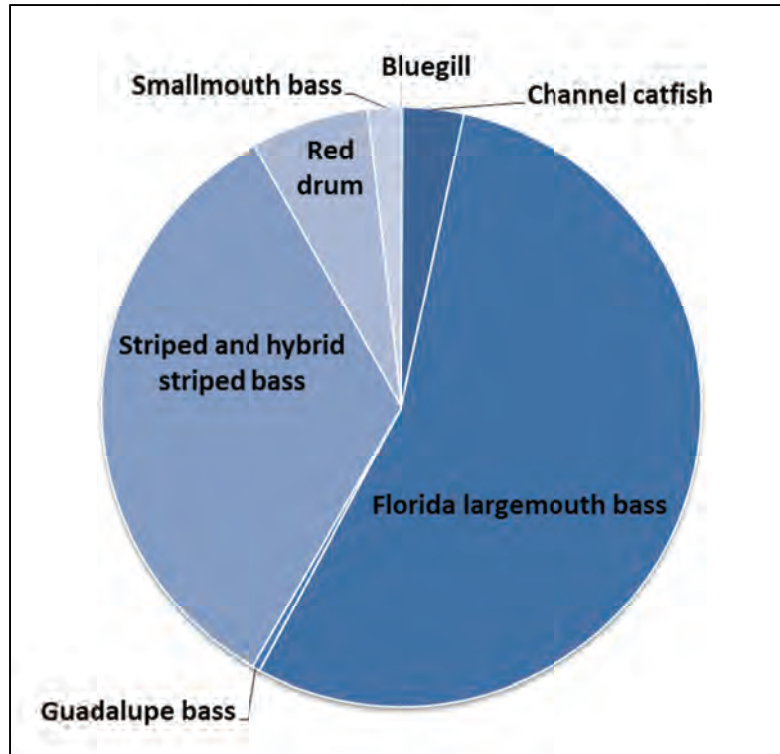
**Managing Invasive Vegetation** — Aquatic Habitat Enhancement staff treated or engaged contractors to treat over 4,775 acres of the invasive floating fern, giant salvinia (*Salvinia molesta*), on Toledo Bend Reservoir and Caddo Lake. Additionally, more than 75,000 giant

salvinia weevils were reared and stocked at various locations to help control giant salvinia. Herbicide, biological controls, and physical removal were also used to help control alligatorweed, Eurasian watermilfoil, floating heart, hydrilla, water hyacinth, and water lettuce. In addition to activities conducted by the department, Inland Fisheries staff reviewed at least 370 proposals from other agencies and private citizens for treating nuisance vegetation in the state’s fresh waters.



### Hatcheries and Stocking —

Freshwater hatcheries produced 14.3 million fingerlings for stocking in public waters. Largemouth Bass (54%) and Striped/Hybrid Striped Bass (32%) comprise approximately 86% of the total number of fingerlings stocked annually. Other species stocked included Guadalupe Bass, Channel Catfish, Blue Catfish, Smallmouth Bass, Bluegill, Walleye, Rainbow Trout and Red Drum. Trout are acquired from a commercial producer and Red Drum are produced by the Coastal Fisheries Division. Additionally, some of the 12" to 14" advanced Channel Catfish fingerlings stocked in support of the Neighborhood Fishin' Program are acquired from a commercial producer. Hatchery staff made more than 550 stocking trips, driving more than 181,000 miles to distribute fish to 298 water bodies.



**Regulation Updates** — Staff recommended several changes in regulations to improve angling opportunities and protect fisheries resources. The following changes were adopted by the Texas Parks and Wildlife Commission.

- Extended water draining rule statewide to cover all public fresh waters in Texas. Boaters must drain water from vessels when traveling to or from a public water body. This rule is designed to prevent or slow the spread of invasive zebra mussels.
- Gave TPWD's executive director authority to temporarily close fishing for Alligator Gar in an area where conditions are conducive to spawning. Closures would be invoked only when specified conditions are occurring and would last no more than 30 days.
- Added a new special trout zone to the Guadalupe River below Canyon Reservoir.
- Made Lake Kyle catch-and-release-only for Channel and Blue Catfish, Largemouth Bass, and sunfishes.
- Changed Red Drum limits on Tradinghouse Creek Reservoir to the standard 20-inch minimum, 28-inch maximum and three-fish daily bag.
- Canyon Lake Project #6 (Lubbock County) and the North and South Concho rivers (San Angelo) now follow the same regulations as Community Fishing Lakes.
- On Texas/Louisiana border waters (Toledo Bend Reservoir, Caddo Lake, and the Lower Sabine River) limits for Blue and Channel Catfish changed to no minimum length and a 50-fish daily bag, of which no more than five fish can be 30 inches or longer.
- Recreational anglers who fish with juglines can now use floats of any color except orange.

## Major Research Findings



**Alligator Gar at Falcon Reservoir** — An intensive study of Alligator Gar at Falcon Reservoir addressed concerns about overabundance and predatory impacts to sport fishes. The study showed that Falcon supports an abundant population, frequent strong year classes, fast growth with females attaining 100 pounds in seven to 10 years, and earlier sexual maturity than reported for other populations. Diet analysis revealed Alligator Gar predation had minimal impact on sport fishes. A concurrent survey of people fishing this lake showed low harvest of Alligator Gar and indicated 82% of anglers favored an increase in the daily bag limit. The

data suggested that this population could support higher angler harvest without compromising size and abundance. Staff proposed increasing the daily bag limit to five fish per day for this reservoir. The Texas Parks and Wildlife Commission approved the change to take effect September 1, 2015, with a provision to re-evaluate the population in five years.

**Handfishing for Catfish** — Staff conducted a comprehensive study on handfishing at Lake Palestine to address public concerns and to better understand these fishing practices in Texas. This landmark study showed that Flathead Catfish populations, harvest and fishing quality in Lake Palestine, and probably other Texas reservoirs, are currently sustainable under existing regulations. The study also indicated that handfishing occurred primarily on 65 water bodies, mostly in East Texas. Handfishers fished an average of 22 days per year and harvested 18 to 40 Flathead Catfish annually (one to two per day). Findings of this study will help guide future catfish management initiatives in Texas.



**Effects of Desalination** — Desalination is being increasingly considered throughout Texas as a way to support municipal water supply needs, especially in areas with saline rivers and brackish groundwater. To inform management of desalination plants and provide consideration of sport fishes and their habitats, Inland Fisheries completed a pre- and post-assessment of the downstream effects of a recently developed desalination plant on the Wichita River.



**Unmanned Aerial Surveys** — Inland Fisheries collaborated with Texas State and Texas Tech universities to complete a feasibility study that examined uses of low-cost unmanned aerial systems (UAS) in aquatic resources management. Specifically, a UAS was used to:

- map invasive salt cedar (multiple species in the genus *Tamarix*) that have degraded instream habitat conditions in the Pease River
- map instream meso-habitats and structural habitat features such as boulders and woody debris in the South Llano River as a baseline prior to habitat improvements
- map enduring pools in the Blanco River during drought conditions to guide non-native fish removal efforts
- quantify river use by anglers in the Guadalupe River

This study represents a first step toward assessing the full range of UAS applications in aquatic resources management, including

their ability to offer potential cost savings, time efficiencies, and higher-quality data over traditional survey methods.

**Neighborhood Fishin'** — Staff completed a multi-year statewide survey of the Neighborhood Fishin' program (NFP). Surveys showed more than 82,000 participants at 14 program lakes during 2013; nearly 50% were children or new/lapsed anglers. Participation was up substantially from 2006, when 30,000 individuals participated and only eight lakes were in the program. Neighborhood Fishin' attracted about 1,600 individuals per year per acre of water, compared to 1,000 individuals per acre in 2006. Increases in participation can be attributed to program branding and an expanded marketing campaign. Results also showed that NFP supported 138,000 fishing trips during 2013.



Demographic analyses showed effective reach to Hispanic and middle and lower-middle class families. This study confirmed that NFP is helping to achieve agency goals and is a cost-effective way to engage people in the outdoors, especially in major metropolitan areas.

## Increase Access to Public Waters



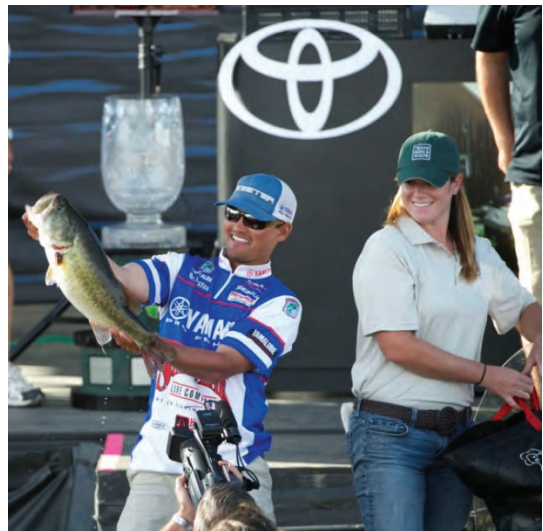
**New Neighborhood Fishin' Lake** — A new Neighborhood Fishin' site was established at Woldert Pond in Tyler, thanks to generous support from the Toyota Texas Bass Classic, SuddenLink Communications, East Texas Woods and Waters Foundation, and the City of Tyler. This addition expanded our program reach to include 16 lakes in 10 major metropolitan areas.

**Increased Boating Access** — We worked to identify boat access needs and recommended funding priorities for 11 proposed freshwater boat ramp projects. These will be partially funded through a Federal Boating Access Grant.

**New Paddling Trails** — Three new paddling trails were launched, expanding the Victoria Paddling Trail complex to a total of four sections traversing more than 20 miles of the Guadalupe River.

## Outreach

**Toyota Texas Bass Classic** — Our division supported two TTBC tournament events in one year's time, Lake Conroe (fall) and Lake Fork (spring). These events generated \$500,000 in funding to support fishing-related outreach projects including the Neighborhood Fishin' program and the Texas State-Fish Art Contest. Tournament events were attended by more than 50,000 spectators and were televised to a nationwide audience. The TTBC showcases an innovative, "fish-friendly" catch-weigh-immediate-release format while promoting our Agency and Division and our successes in fisheries management.



**ShareLunker's 28<sup>th</sup> Season** — The Toyota ShareLunker Program accepted nine entries from six Texas lakes. Two catches were new lake records: a 13-pound bass from Lady Bird Lake in Austin and a 13.22-pounder from Lake Palestine. Two lunkers were successfully spawned at the TFFC hatchery, producing more than 100,000 fry for stocking back into Texas waters.



**Zebra Mussel Public Awareness** — Working with the Communications Division, we ran an intensive public information campaign at the peak of boating season. The campaign, in its fourth year, delivered 73.49 million impressions. The goal was to increase awareness of zebra mussels and motivate boaters to clean, drain and dry their boats to help prevent the spread of this invasive species. Media strategies focused on geographic areas surrounding zebra-mussel infested lakes (Belton, Bridgeport, Lavon, Texoma, Ray Roberts, and Lewisville). This year, the campaign was supported with \$360,000 in federal aid funding and campaign partner donations. Efforts also included surveying boaters, conducting inspections, and gathering data to improve our awareness campaign. A total of 3,634 boaters were contacted at boat ramps on infested lakes. More than 90% were aware of zebra mussels and practiced clean, drain and dry, indicating our efforts are having an impact.

**Guidance for Landowners** — Inland Fisheries partnered with other state agencies and non-profit organizations to offer workshops to riverside landowners on land management practices that can help conserve fish habitats in adjacent rivers and streams. Workshops focused on local conservation issues affecting fish habitats in the South Llano River, Lavaca River, San Bernard River, Arroyo Colorado, Cedar Bayou, Guadalupe River, Double Bayou, Nueces River, and Pedernales River. Total area held by landowners participating in these workshops was more than 75,000 acres. In response to surveys conducted at these workshops, many landowners indicated they planned to implement the recommended practices on their riverside properties. Since 2010, our work with landowners has influenced management of more than 406,900 acres and provided direct benefits to more than 40 spring systems and over 150 miles of creeks and rivers.



**Alligator Gar News Roundup** — In response to growing public interest in Alligator Gar, our staff worked with the media team to create a web-based news roundup. It serves as a one-stop shop for quick facts, images, results of recent research, and links to other Alligator Gar information available on the web.

**State-Fish Art Contest** — Texas Freshwater Fisheries Center hosts the Texas branch of this national contest. In 2014 we had more than 1,100 entries from grades K-12, more than any other state and a quarter of all entries nationwide. First, second, and third place winners received scholarships and fishing gear. The top 10 contestants in each of four grade divisions received fish-themed beachwear from a new sponsor, FishFlops®. A Texas student won the national Art of Conservation Stamp Award. A sixth-grader won third place for her “rap”-style essay on Bluegill.

**Sharing the Great Outdoors** — Texas Freshwater Fisheries Center is our Division’s primary outreach and education center. Open to the public for 308 days in FY14, the Center provided a high-quality experience including facility tours, workshops, and aquatic education classes. Visitors included 52,476 people from 48 states and 10 foreign countries. TFFC provided hands-on fishing for 26,917 visitors, with 183 receiving First Fish Awards. A total of 18,370 people toured the hatchery ponds via guided tram. The center also provided support materials for the general public, teachers and students.



**Special Events** — Texas Freshwater Fishing Center planned and executed ten major events including Fly Fish Texas, Outdoor Fools Day, Cinco de Mayo, National Fishing Day, and community outreach events such as Halloween at the Hatchery, Eggfest Athens, and Fireworks at the Fishery. In addition, Inland Fisheries staff participated in Life’s Better Outside events in San Antonio, Houston, Fort Worth, and Dallas.

**Outreach to Target Audiences** — Inland Fisheries staff led 276 outreach events designed to reach youth under 17, minorities, women, and physically challenged individuals. A total of 21,395 people participated in these events. For details on the various audiences, see Appendix – Outreach Events.

## Infrastructure Enhancements

**East Texas Fish Hatchery** — Construction efforts at the John D. Parker East Texas Fish Hatchery began in August 2008. Although major building activity ended in 2012, allowing partial operation, additional work was needed to bring the facility to full working status. While minor repairs are still needed, the hatchery is fully operational. It produced and stocked more than 3 million Striped Bass and Hybrid Striped Bass fingerlings in FY 2014.



**Adapting to Drought** — Persisting dry conditions across Texas required considerable effort to develop and implement strategies to mitigate the effects and sustain hatchery operations. Strategies included modified operating and water use plans, modifications to existing pumping systems, and development of auxiliary pumping systems. Unfortunately, drought conditions at the Dundee Fish Hatchery forced a temporary suspension of operations for the third consecutive year. Production at Dundee typically represents 20-25% of the total statewide production.

## **Agency-wide Collaboration**

**Data Analysis** — A staff member from Inland Fisheries serves as the technical lead for the License Utilization and Revenue Enhancement System (LURES) project and as the lead platform administrator for the Agency's SAS servers. The LURES project tracks revenue-generating transactions across the databases of the agency, and is helping TPWD better understand our customers and the services they expect the agency to provide. Use of LURES improved financial reporting, and as a consequence, all financial reporting moved to SAS at the start of FY2015. Currently, there are about 700 users of the agency's SAS system, including IF biologists and administrative staff.

**Year-from-Purchase Fishing Licenses** — A working group of staff from Inland Fisheries, Coastal Fisheries, and Administrative Resources analyzed license data to assess buying patterns of resident anglers who purchased fishing licenses based on the standard license year versus those who purchased a year-from-purchase (YFP) license. The goal was to determine how behavioral differences due to the change in the license expiration date would influence revenue. We found that those who bought year-from-purchase licenses had longer lag times in purchasing licenses than those who purchased other license types. This could have a negative effect on revenue if a system offering only YFP licenses were implemented.





# **APPENDIX**

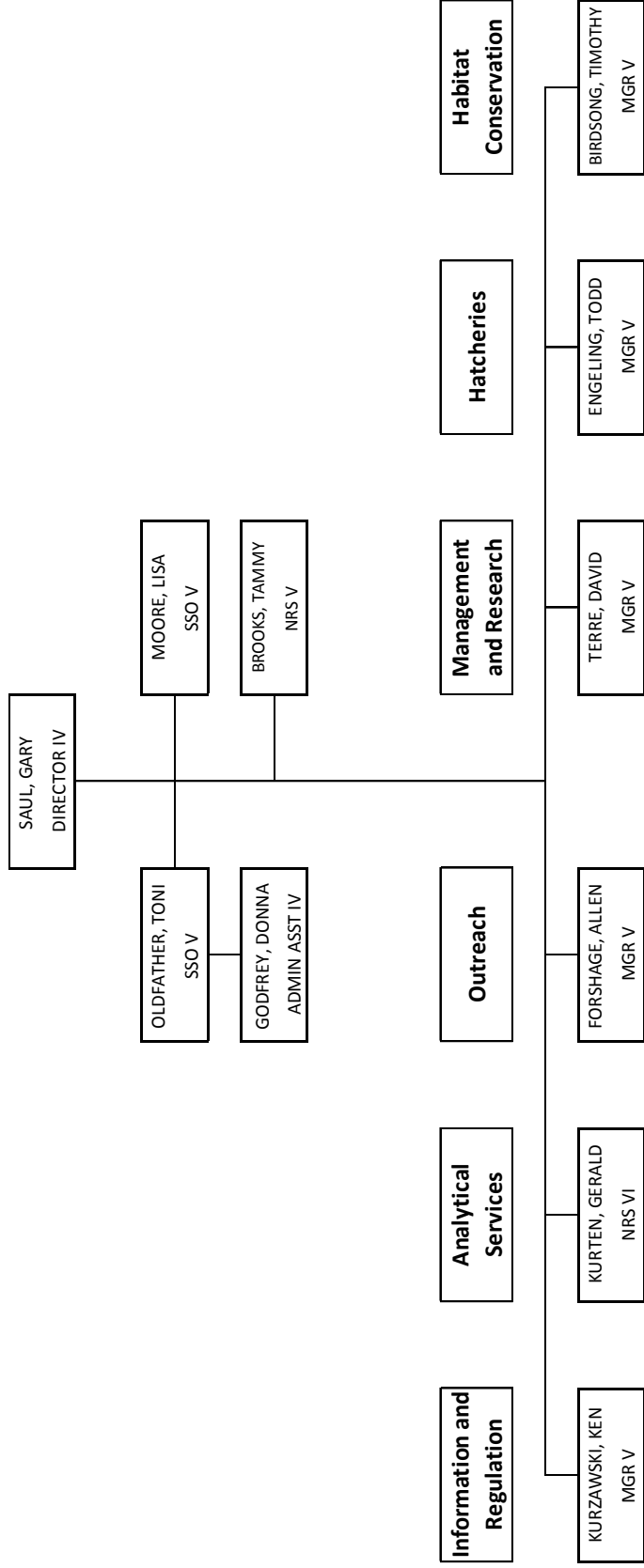


# Organization Charts

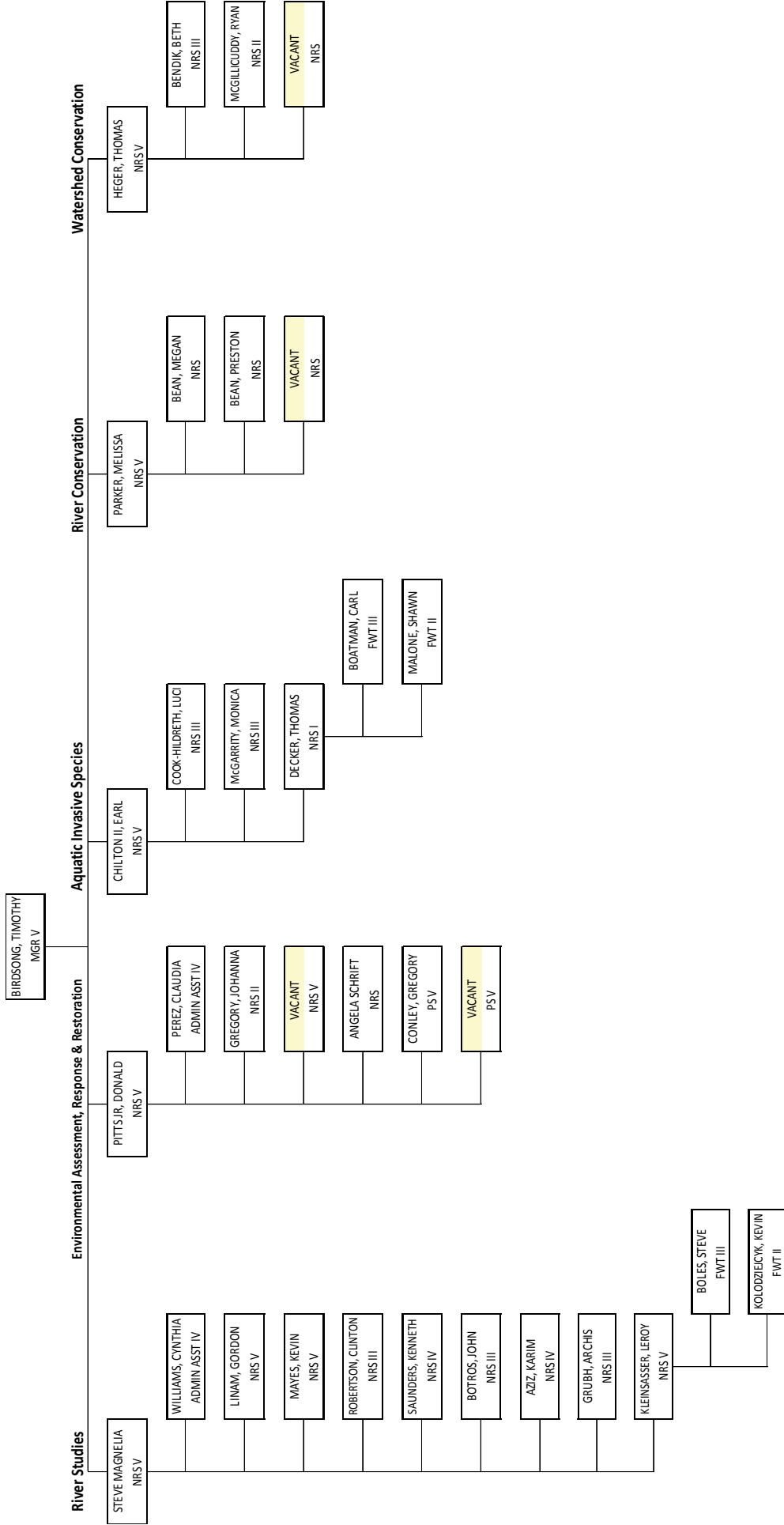
## Legend

<b>Abbreviation</b>	<b>Job Title</b>
ADMIN ASST	Administrative Assistant
CHEM	Chemist
CLERK	Clerk
FWT	Fish and Wildlife Tech
INFO SPEC	Information Specialist
MAINT	Maintenance Supervisor
MGR	Manager
NRS	Natural Resources Specialist
PARK SPEC	Park Specialist
PROG SUP	Program Supervisor
PS	Program Specialist
SSO	Staff Services Officer
WEB ADMIN	Web Administrator

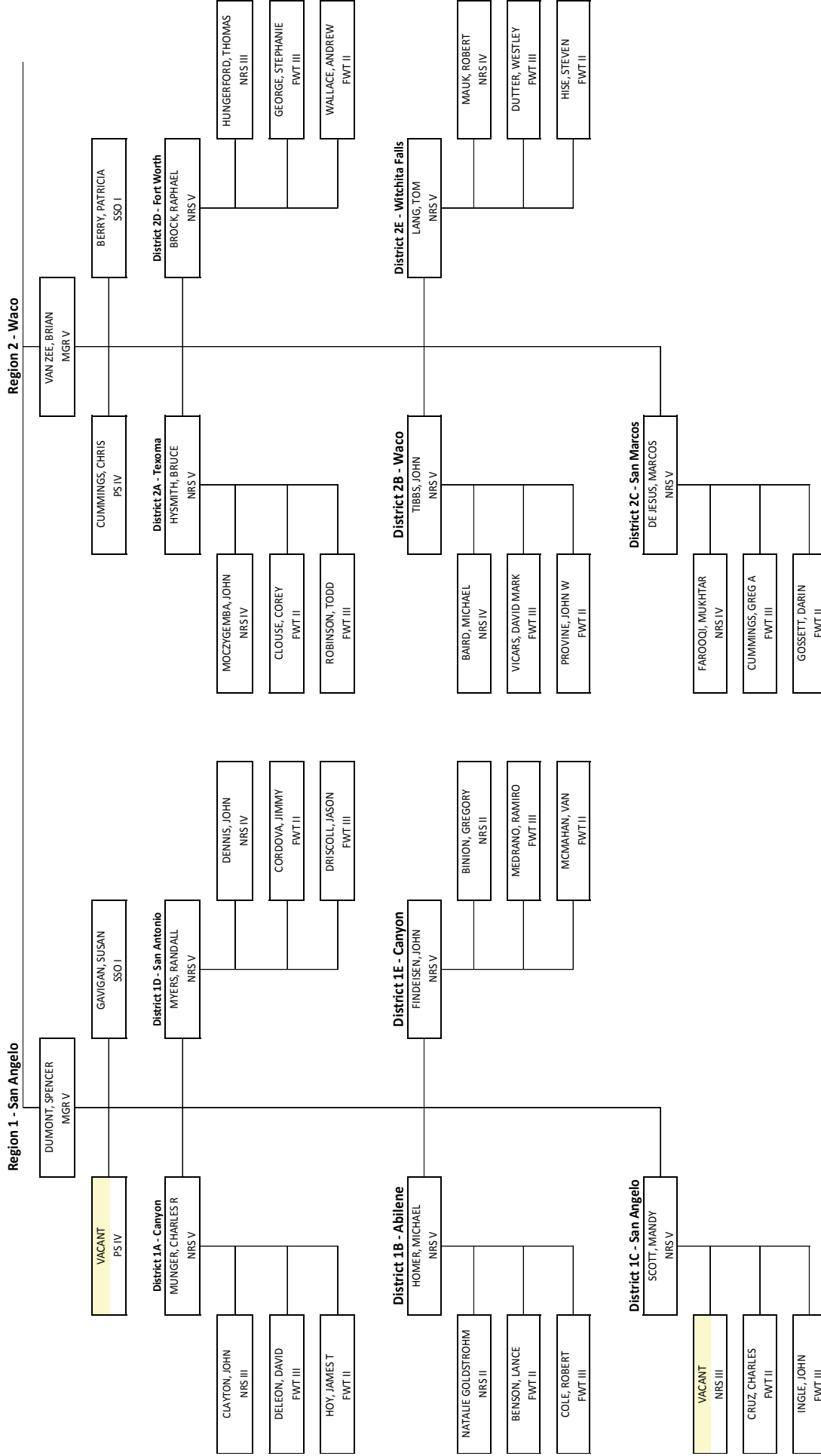
# Inland Fisheries Administration



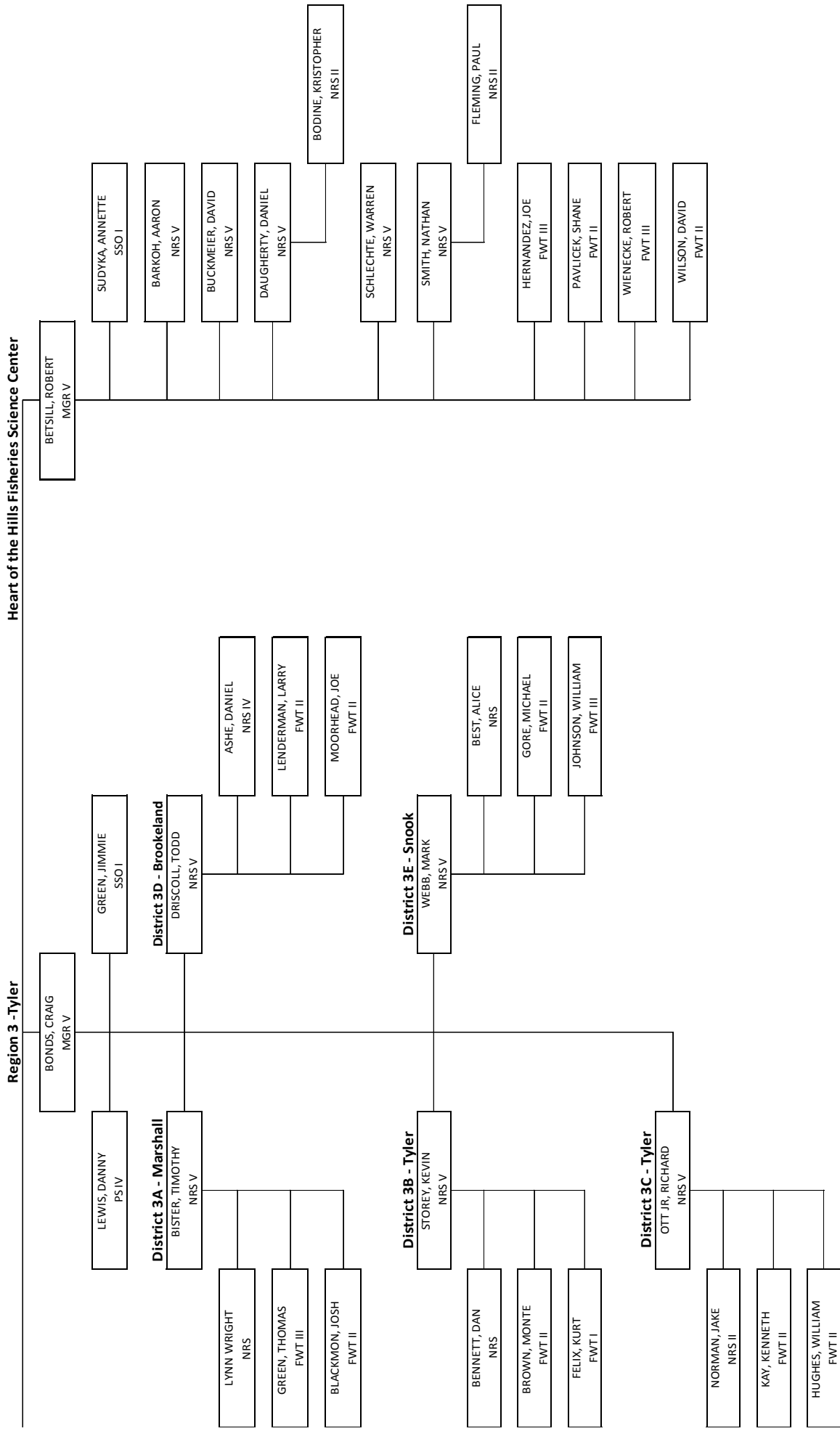
# Habitat Conservation



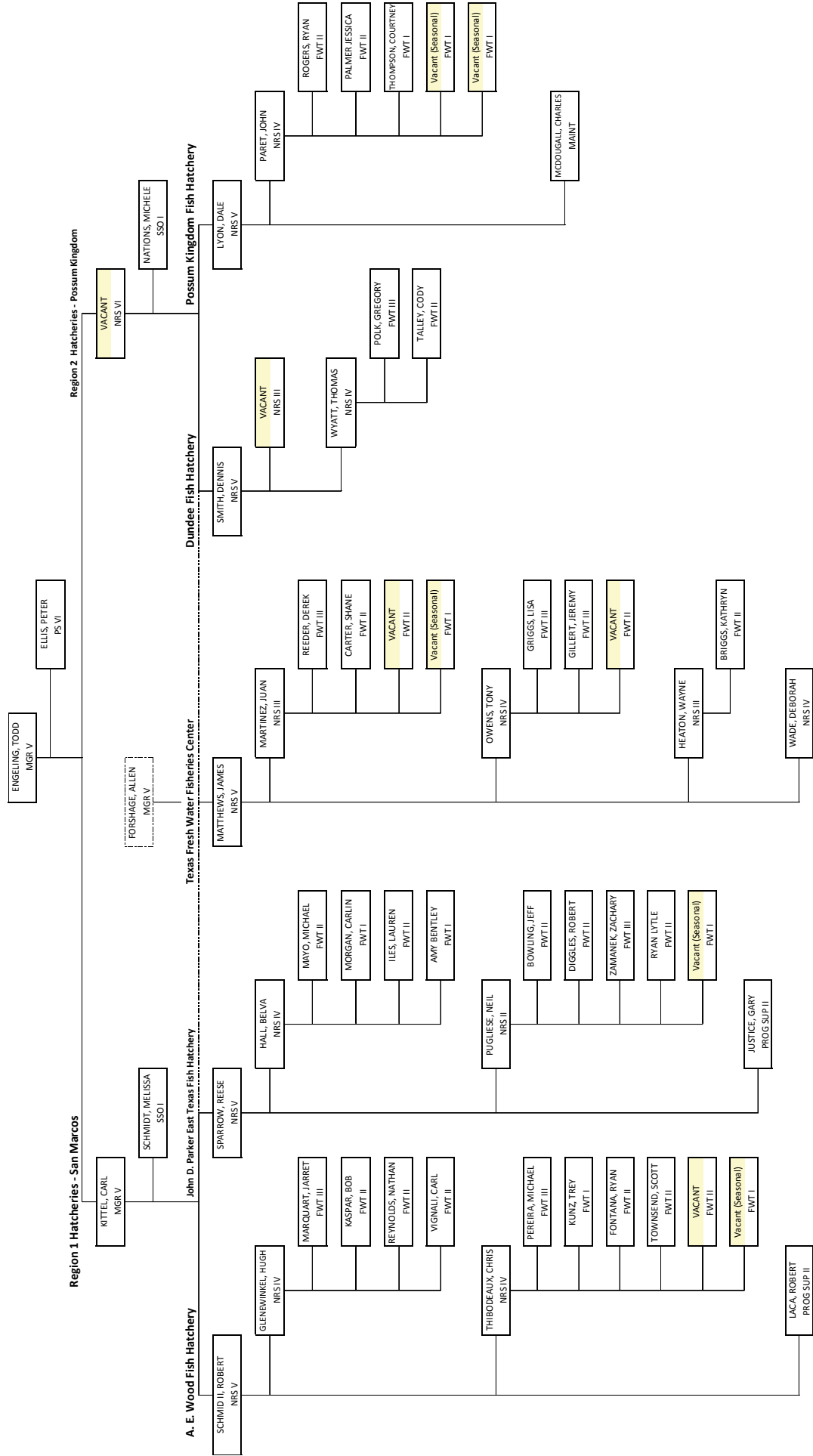
# Fisheries Management and Research Regions 1 & 2



# Fisheries Management and Research Region 3 & Heart of the Hills

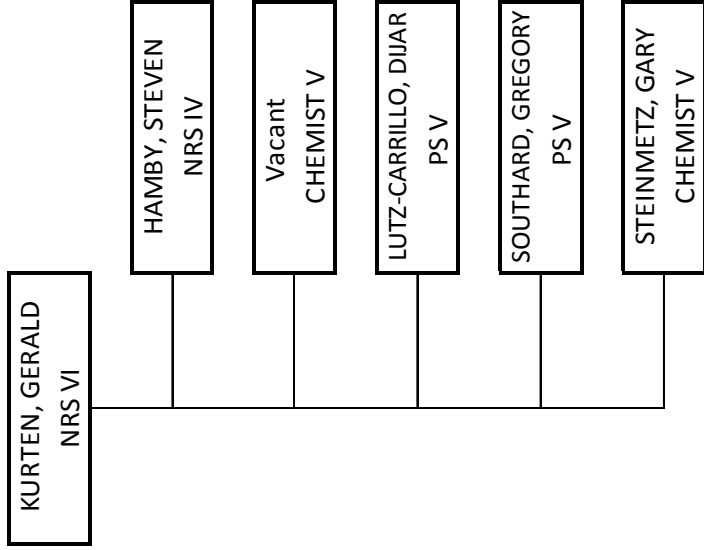


# Hatcheries

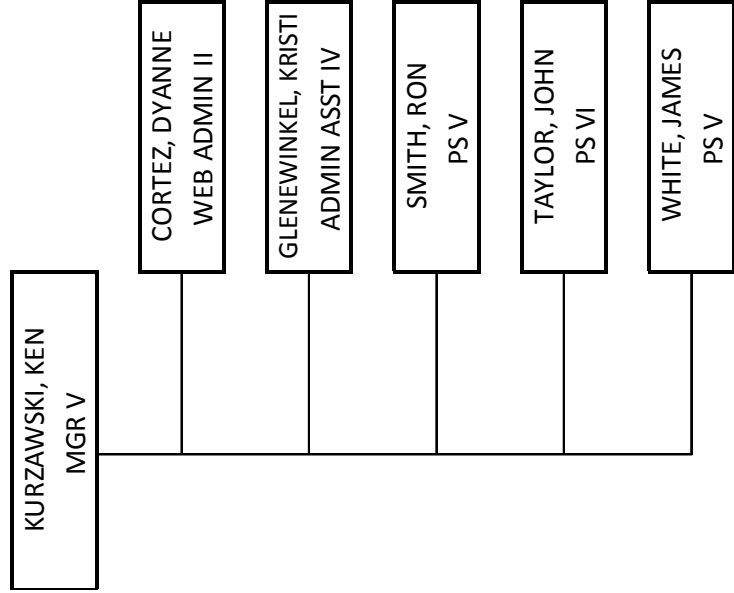




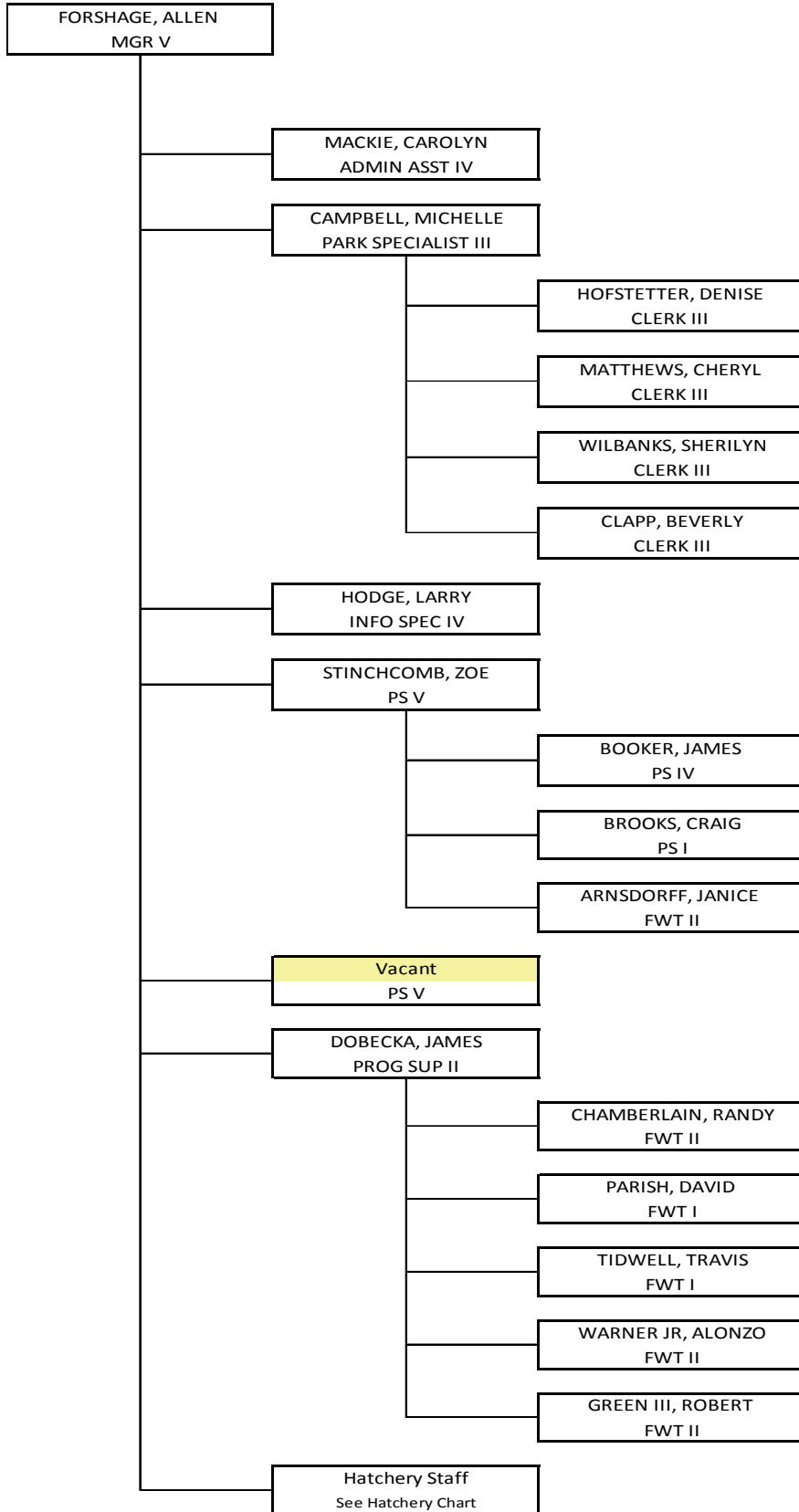
## Analytical Services



## Information and Regulations



# Texas Freshwater Fisheries Center



# Stocking Reports

## Inland Fisheries Hatchery Stockings

Species	Adult	Fingerling	Fry	Total
Bluegill	125	12,556		12,681
Channel Catfish	292	473,133	562,773	1,036,198
Channel Catfish x Blue Catfish		61,568		61,568
Florida Largemouth Bass	202	8,235,417	945,917	9,181,536
Guadalupe Bass		64,945		64,945
Paddlefish	47	2,007		2,054
Palmetto Bass (striped x white bass hybrid)		1,231,420	181,760	1,413,180
Rainbow Trout	319,920			319,920
Red Drum		1,002,811		1,002,811
Redbreast Sunfish	66			66
Redear Sunfish	89			89
ShareLunker Largemouth Bass	26	105,114		105,140
Smallmouth Bass		275,025		275,025
Striped Bass		3,148,328		3,148,328
Sunshine Bass (white x striped bass hybrid)		806,845	1,418,219	2,225,064
Triploid Grass Carp	25			25
Walleye			1,690,650	1,690,650
Grand Total	320,792	15,419,169	4,799,319	20,539,280

## **Research and Special Projects**

Research works to improve the efficiency and effectiveness of Division operations and programs. This year's Inland Fisheries research focused on the following areas.

### **Increasing hatchery production of Striped Bass (5 studies) and other species (11 studies)**

Highlights:

- Developing best practices for spawning captive Striped Bass
- Managing zooplankton prey for fingerling Striped Bass in ponds
- Using preserved milt for Striped Bass egg fertilization
- pH tolerance of Striped Bass fry and fingerlings
- Tolerance of fish fry and fingerlings to zebra mussel control treatments
- Using genetics to refine raceway spawning of Guadalupe Bass

### **Largemouth Bass genetics and management (9 studies)**

Highlights:

- Comparing growth of ShareLunker offspring and other Florida Largemouth Bass
- A case history of Lake Fork: Texas' premier trophy Largemouth Bass fishery
- Measuring the economic value of recreational fishing at Sam Rayburn reservoir
- Estimating exploitation of Largemouth Bass in Amon G. Carter reservoir

### **Catfish management and urban-suburban community fisheries (8 studies)**

Highlights:

- Evaluating an experimental 30" to 45" slot length limit for Blue Catfish
- Assessing harvest of catfish by handfishing in East Texas
- Comparing catch and harvest of catfish with trotlines, juglines, and rod-and-reel
- Characterizing the users of Neighborhood Fishin' lakes
- Measuring survival and harvest of catfish in Community Fishing Lakes

### **Fish habitat assessment and improvement (8 studies)**

Highlights:

- Low cost side-scan sonar technology for mapping fish habitat and aquatic vegetation
- Importance of river-reservoir transition zones for river and reservoir fish populations
- Rainbow Trout habitat use in the Canyon Reservoir tailrace
- Using fish attractors to enhance aquatic habitat

### **Aquatic invasive species management or control (6 studies)**

Highlights:

- Detecting zebra mussels using environmental DNA
- Relating seasonal golden alga abundance with water quality in Lubbock city lakes
- Refining fish bioassays for detecting toxic blooms of golden alga

### **Managing river fisheries (5 studies)**

Highlights:

- Monitoring effects of water treatment plant discharges in the Wichita River
- Assessing the Alligator Gar population in the Brazos River
- Estimating harvest of Alligator Gar in Trinity River bow fishing tournaments
- Evaluation of Guadalupe Bass stocking in the upper Guadalupe River

## **Publications and Presentations**

### **Scientific Publications & Reports**

- Bodine, K. A. and B. P. Fleming. 2013. Evaluation of an alternative technique for attaching external transmitters to blue catfish. *North American Journal of Fisheries Management* 33:950-955.
- Bodine, K. A. and B. P. Fleming. 2014. Retention of Passive Integrated Transponder and T-Bar Anchor Tags in Blue Catfish. *North American Journal of Fisheries Management* 34:68-71.
- Bodine, K. A., D. E. Shoup, J. A. Olive, Z. L. Ford, R. Krogman, T. J. Stubbs. 2013. Catfish sampling techniques: where we are now and where we should go. *Fisheries* 38:529-546.
- Daugherty, D. J., M. T. Driscoll, D. E. Ashe, J. W. Schlechte. 2014. Effects of Structural and Spatiotemporal Factors on Fish Use of Artificial Habitat in a Texas Reservoir. *North American Journal of Fisheries Management*, 34:2, 453-462.
- Driscoll, M. T. and R. Myers. 2014. Black bass tournament characteristics and economic value at Sam Rayburn Reservoir, Texas. *Journal of the Southeastern Association of Fish and Wildlife Agencies* 1:26-32.
- Hutt, C., K. Hunt, J. W. Schlechte, D. L. Buckmeier. 2013. Effects of catfish angler catch-related attitudes on fishing trip preferences. *North American Journal of Fisheries Management* 33:965-976.
- Hysmith B. T., J. H. Moczygemba, R. A. Myers, M. T. Driscoll, M. S. Allen. 2014. Population-level impacts of Largemouth bass mortality associated with tournaments in a Texas reservoir. *Journal of the Southeastern Association of Fish and Wildlife Agencies* 1:98-102.
- Opdyke, D. R., Oborny, E. L., Vaughn, S. K., and Mayes, K.B. 2014. Texas environmental flow standards and the hydrology-based environmental flow regime methodology. *Hydrological Sciences* 59:820-830.

### **Popular Articles**

Seventy-eight popular articles were written and published by Inland Fisheries staff in 10 different publications. Popular articles were produced by Dyanne Cortez (3), Larry Hodge (6), River Studies (2), River Conservation (3), and five IF management district offices: Abilene (26), San Marcos/Austin (12), Jasper (12), San Angelo (8), and College Station/Houston (6).

## Technical Presentations

A total of 48 presentations were given by 57 staff as author or co-author, at 13 professional meetings or conferences. Venues included:

- Texas Chapter of the American Fisheries Society annual meeting, Pottsboro, TX
- Southern Division of the American Fisheries Society, Charleston, SC
- American Fisheries Society annual meeting, Little Rock, AR
- American Fisheries Society annual meeting, Quebec City, Canada
- Southeastern Association of Fish and Wildlife Agencies annual meeting, Oklahoma City, OK
- Texas Aquaculture Association annual meeting, Fredericksburg, TX
- Warm Water Fish Culture Workshop Mid-Continent annual meeting, Council Bluffs, IA
- Triennial Conference of the World Aquaculture Society, Nashville, TN
- North American Wildlife and Natural Resources Conference, Denver, CO
- Instream Flow Conference, Key West, FL
- Master Naturalist 14th Annual Statewide Meeting & Advanced Training, New Braunfels, TX
- Annual Meeting of the Aquatic Plant Management Society, Savannah, GA
- Fish Passage 2014 Conference, Madison, WI

## Outreach Events

Inland Fisheries staff members were event leaders at 276 outreach events for targeted user groups (youth under 17, minorities, women, and physically challenged) in which 21,395 individuals participated.

	<b>Youth 17 &amp; under</b>	<b>Adults</b>	<b>Total</b>
Males (1)	8,047	2,967	11,014
Females (2)	6,714	3,667	10,381
Minorities	5,318	1,040	6,358
Physically Challenged	405	263	668
Total (1+2)	14,761	6,634	21,395

## Work with Other Organizations

### Program Contracts and Agreements

BIOWEST, Inc. (Ed Osborne)	Radio Tracking of Blue Sucker in the Lower Sabine River	\$212,450
Central Michigan University (Kevin Pangle)	Chemical Analysis of Alligator Gar Otoliths	\$10,000
Cypress Valley Navigation District	Management and Control of Aquatic Nuisance Plant Species in Caddo Lake	\$50,000
Environmental Conservation Alliance (Tom Hayes)	Riparian Productivity on the Brazos and Guadalupe Rivers	\$149,866
Guadalupe-Blanco River Authority (Debbie Magin)	Biological Baseline Sampling in the Lower Guadalupe River	\$24,069
Hill Country Alliance	Private Landowner Incentive-Based Watershed Conservation in the Edwards Plateau Ecoregion – Coordinating Implementation of the Aquatic Resources Conservation Objectives of the Texas Conservation Action Plan	\$150,000
Mississippi State University (Kevin Hunt)	A Social and Economic Analysis of the Lake Fork Reservoir Recreational Fishery	\$39,727
Nueces River Authority	Control of Invasive Giant Reed in the Upper Nueces River Watershed	\$122,000



Trinity River Authority (Webster Mangham)	Biological Baseline Sampling in the Middle Trinity River	\$24,000
Texas AgriLife Research (Charles Randklev)	Mussel Survey of the Lower Sabine River	\$50,600
Texas AgriLife Research (Charles Randklev)	Mussel and Macroinvertebrate Data Collection in the Middle and Lower Brazos River	\$27,770
Texas AgriLife Research (Kirk Winemiller)	Flow Dependent Species: Life History and Habitat Associations in Texas Gulf Coast Rivers	\$135,000
Texas Tech University (Gene Wilde)	Population Dynamics Model for Fishes of the Upper Brazos River	\$281,395
Texas Tech University (Tim Grabowski)	Effects of Urbanization, Population Status, and Reproductive Success of Guadalupe Bass Populations in the Lower Colorado River	\$134,951
Texas Tech University (Tim Grabowski)	Larval Fish in Trinity River Floodplains: Do River-Reservoir Interface Habitats Serve as Surrogate Nursery Habitats for Floodplain-Dependent Riverine Fishes?	\$95,331
Texas State University (Tim Bonner)	Focal Larval Fish Species Distribution and Habitat Use in the San Antonio River	\$165,000
Texas State University (Tim Bonner)	An Evaluation of the Relationship between Flow and Habitat Availability for the Devils River Minnow	\$8,135
Texas State University (Thom Hardy)	Texas Instream Flow Program Hydrological Support	\$190,000
Texas State University (Thom Hardy)	Application of Unmanned Aerial Vehicle Technology in Support of TPWD Conservation Goals	\$169,000
Texas State University (Glenn Longley)	Student Workers	\$32,640
Trout Unlimited (Jack Williams)	Feasibility Study for Native Fish Establishment in West Texas Streams including Potential Reestablishment of Rio Grande Cutthroat Trout in McKittrick Creek, Guadalupe Mountains National Park, Texas	\$26,225
University of Southern Mississippi (Brian Kreiser)	Molecular Identification of Young of Year Gar from Texas	\$7,000

## Grants and Donations

Meta Alice Keith Bratten Foundation	Conserving Texas Rivers Initiative	\$25,000
National Fish and Wildlife Foundation	Conservation of Guadalupe Bass in the Pedernales River	\$100,000
The Favrot Fund	Conserving Texas Rivers Initiative	\$30,000
Desert Fish Habitat Partnership	Pecos Pupfish Habitat Restoration	\$43,600
Friends of Dennis Smith	Neighborhood Fishin'	\$545
Guadalupe River Trout Unlimited	Student Intern	\$7,000
Texas Bass Classic Foundation	Neighborhood Fishin'	\$75,000
Texas Parks and Wildlife Foundation	Operation World Record/ShareLunker	\$52,000
Texas Parks and Wildlife Foundation	Neighborhood Fishin'	\$40,036
Desert Fish Habitat Partnership	Phantom Lake Springs Cienega Habitat Restoration	\$3,300





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